



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/717,246	11/18/2003	Edward William Adams	130924.62121	7752
56466	7590	04/21/2006	EXAMINER	
PEPPER HAMILTON; LLP; CHRISTOPHER J. BUNTEL; AND KOREN ANDERSON ONE MELLON CENTER, 50TH FLOOR GRANT STREET PITTSBURGH, PA 15219			TSOY, ELENA	
		ART UNIT	PAPER NUMBER	
		1762		

DATE MAILED: 04/21/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	Application No.	Applicant(s)
	10/717,246	ADAMS ET AL.
	Examiner Elena Tsoy	Art Unit 1762

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

#### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

1) Responsive to communication(s) filed on 28 March 2006.

2a) This action is FINAL.                    2b) This action is non-final.

3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

4) Claim(s) 1-16 is/are pending in the application.

4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.

5) Claim(s) \_\_\_\_\_ is/are allowed.

6) Claim(s) 1-16 is/are rejected.

7) Claim(s) \_\_\_\_\_ is/are objected to.

8) Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

9) The specification is objected to by the Examiner.

10) The drawing(s) filed on \_\_\_\_\_ is/are: a) accepted or b) objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).  
11) The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

12) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a) All    b) Some \* c) None of:

- Certified copies of the priority documents have been received.
- Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
- Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

1) Notice of References Cited (PTO-892)

2) Notice of Draftsperson's Patent Drawing Review (PTO-948)

3) Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_

4) Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_

5) Notice of Informal Patent Application (PTO-152)

6) Other: \_\_\_\_\_

***Response to Amendment***

Amendment filed on 3/28/2006 has been entered. Claims 1-16 are pending in the application.

***Claim Objections***

1. Claims 12 and 13 stand objected because “poly(acrylic acid-octylacrylamide)” without the use of “-co-“ means a polymer resulting from combining acrylic acid and octylacrylamide. For clearer understanding “poly(acrylic acid-co-octylacrylamide)” should be changed to a conventionally used expression “a copolymer of acrylic acid and octylacrylamide”.

***Claim Rejections - 35 USC § 103***

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. Claims 1-16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Bawendi et al (US 6,319,426) in view of Ma et al (US 5,221,334) for the reasons of record set forth in paragraph 3 of the Office Action mailed on 11/28/2005 because Bawendi et al teach **semiconductor** nanocrystals (See column 12, lines 65-67), as was discussed in paragraph 5 of the Office Action mailed on 12/10/2004.

4. Claims 1-16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ma et al in view of Bawendi et al for the reasons of record set forth in paragraph 4 of the Office Action mailed on 11/28/2005 because Ma teaches that metal oxides such as **titania** (titanium dioxide)

may be used (See column 8, lines 43-47). It is well known in the art that titanium dioxide is a *semiconductor* metal oxide.

5. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Watanabe et al (US 5874701) is cited to show that titanium dioxide is a *semiconductor* metal oxide (See Abstract).

#### ***Response to Arguments***

6. Applicants' arguments filed 3/28/2006 have been fully considered but they are not persuasive.

Applicants submit that there is no motivation to combine Bawendi with Ma to arrive at Applicant's invention.

The Examiner respectfully disagrees with this argument. Bawendi et al teach that a coating outer layer includes any molecule having at least one hydrophobic linking moiety that attaches to the surface of the hydrophobic semiconductor particle and that terminates in at least one hydrophilic moiety (See column 13, lines 5-28). Ma et al teach that a AB block copolymer where A block is hydrophobic and serves to link with a hydrophobic metal oxide pigment such as titania (semiconductor particles) (See column 8, lines 43-47), and the B block is hydrophilic and serves to disperse the pigment in the aqueous medium (See column 3, lines 26-34) is suitable for stabilizing a hydrophobic pigment of 0.005-1 microns (5 nm-1000 nm) (See column 7, lines 25-27) in an aqueous medium over long periods (See column 3, lines 15-17). It is held that the

selection of a known material based on its *suitability for its intended use* supported a prima facie obviousness determination. See MPEP 2144.07.

One of ordinary skill in the art would have *reasonable expectation of success* of using AB block copolymer of Ma as a coating outer layer in Bawendi et al. Therefore, there is a clear motivation to combine Bawendi with Ma to arrive at Applicant's invention.

### ***Conclusion***

7. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Art Unit: 1762

8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Elena Tsoy whose telephone number is 571-272-1429. The examiner can normally be reached on Monday-Thursday, 9:00AM - 5:30 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Timothy Meeks can be reached on 571-272-1423. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Elena Tsoy  
Primary Examiner  
Art Unit 1762

ELENA TSOY  
PRIMARY EXAMINER  
*E. Tsoy*

April 19, 2006